

## Improved multifunctional drinking cup structure

### BACKGROUND OF THE INVENTION

#### Field of the Invention

5 The present invention relates to an improved multifunctional drinking cup structure, more particularly to a multifunctional drinking cup structure applicable to disposable or non-disposable drinking cups from which beverage can be drunk more conveniently either by mouth or by straw. The outlet hole can be closed, when the user does not want to have a drink at that time. The lid body can be fixed to the bottom of the cup body to serve as a saucer.

#### 10 Description of the Related Art

The cups used in the present beverage stores are basically divided into two main types: disposable cup and non-disposable cup, and most of the disposable cups are low-price paper cup or plastic cup disposed after a single use, and is very convenient. Most of the non-disposable drinking cups are sold to customers by the beverage store, and customers can buy them and use at home, or bring such drinking cup to the beverage store to purchase beverages in order to attain a better environmental protection effect.

20 When a customer wants to take out a beverage, the storekeeper generally uses a paper cup or a plastic cup sealed with a cup lid to prevent the beverage from spilling out, and the cup generally comes with an outlet hole and an insert hole to facilitate consumers to drink the beverage from the cup, so that the consumer can either drink the beverage by mouth or by a straw. However, the disposable drinking cup has the following shortcomings:

- 25 1. The outlet hole does not have any sealing structure, and when a consumer wants to take out a beverage, the beverage store usually seals the outlet hole of the drinking cup with a tape, and the consumer tears away the tape before drinking, and thus is not very sanitary.

2. The traditional disposable drinking cups, particularly those for containing tea or Chinese medicine, the residue of tea or herbal medicine will float on the beverage since the drinking cup does not have a filter device.
3. If the traditional disposable drinking cup is used to make tea, it requires a detachable filter in the cup. The detachable filter is taken out, and placed somewhere else before drinking, and thus wetting the tabletop or the surrounding environment, affecting the sanitation, or wasting time for the use.
4. The insert hole on the lid of a traditional disposable drinking cup for inserting a straw is generally stamped with a cross-shaped cutting line, so that the straw can be inserted directly into the cup through the cross-shaped cutting line by force. However, the cross-shaped cutting line after its cutting will form a triangular plate structure with four plates being bent downward, and such triangular plate structure uses its tips to press against the straw. Therefore, the force exerted on the straw by each plate of the triangular plate structure is not even, and causes an askew straw, which will make the drinking of the remaining beverage inconvenient.
5. The traditional disposable drinking cup only has one straw insert hole on the cup lid, and such design makes the sharing of a drink by lovers inconvenient.

Thus, this invention overcomes the shortcomings of the traditional disposable drinking cup, and in the meantime the disclosed structure is also applicable for the non-disposable drinking cup, and enhances the practicability and added value of the non-disposable drinking cup.

### **Summary of the Invention**

The primary objective of the present invention is to provide an improved multifunctional drinking cup structure that has the function of closing and opening each hole on the cup lid. In addition to prevent foreign substances or dust from falling into the cup, it also makes the drinking more sanitary or peace of mind for the consumers.

The secondary objective of the present invention is to provide an improved multifunctional drinking cup structure that improves the insert hole structure for inserting the straw, so that after the straw is inserted into the insert hole, the straw can be kept vertical to let consumers to drink the remaining beverage in the cup more easily.

Another objective of the present invention is to provide an improved multifunctional drinking cup structure that adds a guiding groove on the cup lid, and sets the outlet hole in the position of the guiding groove such that consumers can drink the beverage more conveniently by holding the guiding groove by mouth.

A further objective of the present invention is to provide an improved multifunctional drinking cup structure that has two secondary insert holes on the cup lid, such that people like couples or lovers can share the beverage.

Another further objective of the present invention is to provide an improved multifunctional drinking cup structure that is applicable for the disposable and non-disposable drinking cups.

The improved multifunctional drinking cup structure in accordance with this invention comprises a cup body, an inner cup lid, and an outer cup lid, wherein the inner cup lid is used to cover the opening of the cup body directly, the inner cup lid has an outlet hole, a convection hole, a primary insert hole, and a secondary insert hole (as needed), and the outer cup lid has a corresponding outlet hole, a convection hole, a primary insert hole, and a secondary insert hole; the outer cup lid is covered inside the cup body, such that when the outer cup lid is rotated to align the corresponding holes, beverage can be drunk from the outlet hole by the mouth, or by sucking a straw that is inserted into the primary insert hole or the secondary insert hole. Both of the primary insert hole and the secondary insert hole have a guiding structure that prevents the straw from being askew. The outer cup lid may have no holes at all, but is simply used to cover the inner cup lid. The structure of this invention can be made of hard materials, comprising a cup body and a lid body, wherein the cup body similarly comprises an outlet hole and a convection hole, and an

inner thread and an outer thread are disposed on the top end and the bottom end of the lid body respectively, such that the lid body can be secured on the top end or the bottom end of the cup body.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

5           Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, in which:

10           FIG.1 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the first preferred embodiment of the present invention.

          FIG.2 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the second preferred embodiment of the present invention.

15           FIG.3 is a perspective diagram of the inner cup lid being assembled to the cup body according to the first embodiment of this invention.

          FIG.4 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the third preferred embodiment of the present invention.

20           FIG.5 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the fourth preferred embodiment of the present invention.

          FIG.6 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the fifth preferred embodiment of the present invention.

25           FIG.7 is an illustrative diagram of the insert hole structure on the cup lid according to the present invention.

FIG.8 is a perspective diagram of the sixth preferred embodiment of the present invention.

FIG.9 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the seventh preferred embodiment of the present invention.

FIG.10 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the eighth preferred embodiment of the present invention.

FIG.11 is a perspective diagram of the inner cup lid being assembled to the bottom of the cup body as a saucer according to the seventh preferred embodiment of the present invention.

FIG.12 is a perspective diagram of the assembling relation of disassembled parts of the structure according to the ninth preferred embodiment of the present invention.

FIG.13 is a perspective diagram of the inner cup lid being assembled to the bottom of the cup body as a saucer according to the ninth preferred embodiment of the present invention.

FIG.14 is a perspective diagram of the enlarged section of the outlet holes on the inner and outer cup lids according to the present invention.

FIG.15 is a perspective diagram of a part of the guiding groove with a flange on its outer side according to a preferred embodiment of the present invention.

## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Please refer to FIG. 1 for the structure of the first preferred embodiment of this invention, comprising a cup body 3, an inner cup lid 1, and an outer cup lid 2; wherein the cup body 3 could be a paper cup or a plastic cup or even a cup made of other material. The inner cup lid 1 is used to cover the opening of the cup body 3

(refer to FIG. 3), and a recession 11 is disposed at the center of the top of the inner cup lid 1, and an arc surface 12 is disposed at the bottom of the recession 11, such that the top of the inner cup lid 1 forms a ring-shaped flange 10, and a plurality of outlet holes 13 with a small diameter and a convection hole 16 are disposed on the appropriate positions on the flange 10, and a primary insert hole 14 is disposed at the center of the arc surface 12. Please refer to FIG. 7. The primary insert hole 14 at its periphery is equally divided into a plurality cutting seams 18, such that a straw can be inserted into the primary insert hole, and the circular primary insert hole 14 guides the straw into a substantially vertical state, and the plates of the cutting seams can assist to fix the straw into a position by clamping. In the first preferred embodiment of this invention, two secondary insert holes 15 disposed at the appropriate positions. The structure of the secondary insert hole 15 is the same as that of the primary insert hole 14 so that two straws can be inserted simultaneously into the two secondary insert holes 15 to allow two persons to drink the beverage from the cup at the same time.

In the first preferred embodiment of this invention, the outer cup lid 2 is used to cover on top of the inner cup lid 2, wherein a recession 21 is disposed at the center of the top of the outer cup lid 2, and the bottom of the recession 21 is an arc surface 22, so that the top of the outer cup lid 2 forms a ring-shaped flange 20. A plurality of outlet holes 23 with smaller diameter, a convection hole 26 and two secondary insert holes 25 are disposed on the flange 20, and a primary inset hole 24 is disposed at the center of the arc surface 22. In other words, the structure of the outer cup lid 2 is corresponsive to the inner cup lid 1, and the diameter of the outer cup lid 2 is slightly larger than that of the inner cup lid 1, so that the outer cup lid 2 can cover the inner cup lid 1. When the cup is in use, the outer cup lid 2 is rotated to let the outlet hole 13 align with the outlet hole 23, the convection hole 16 with the convection hole 26, the primary hole 14 with the primary hole 24, and the secondary insert hole 15 with the secondary insert hole 25 respectively. Such arrangement allows users to drink the beverage in the cup body by sucking at the position of the outlet hole 23. When the outer cup lid 2 is rotated to misalign the outlet hole 13, 23, convection hole 16, 26, primary hole 14, 24, and secondary hole 15, 25 of the outer cup lid 2 and the inner

cup lid 1 respectively to close the cup body and will not let the beverage spill out. Even if the outer cup lid 2 is removed and the inner cup lid 1 is remained, the user still can drink beverage from the cup. The purpose of forming an arc surface 12, 22 on the bottom of the recession 11 and 21 respectively mainly resides on using the intersection of the periphery of such arc surface and the flange 10, 20 to define a recession in order to meet the ergonomic requirements for sucking the flange 10, 20 at the position of the outlet hole 13, 23.

Please refer to FIG. 2 for the second preferred embodiment of this invention. Similarly, this structure also comprises a cup body 3, an inner cup lid 1, and an outer cup lid 2; wherein the inner cup lid 1 and the outer cup lid 2 basically have the same structure as those of the first preferred embodiment, except the inner cup lid 1 of the second preferred embodiment further comprises a guiding groove 17 on the flange 10, and the plurality of outlet holes with smaller diameter are disposed at the bottom of the guiding groove 17. Further, the outer cup lid 2 only has a primary insert hole 24 disposed at the center of the arc surface 22.

When the structure of the second preferred embodiment is in use, the outer cup lid 2 must be lifted up so that the user can drink the beverage by sucking at the position of the guiding groove 17. If the straw is sucked, the straw can be inserted directly into the primary insert hole 24 of the outer cup lid 2 and the primary insert hole 14 of the inner cup 1.

The guiding groove 17 of the second preferred embodiment of this invention is a design with the outer bottom parallel to the bottom of the guiding groove 17. This design is more suitable for the user to drink the beverage by sucking the guiding groove 17. If the drinking cup of this invention is used for making tea or Chinese medicine, which requires pouring tea or medicine from the outlet hole 13, the tea or medicine will flow out from the outlet hole 13 through the guiding groove 17. The tea or medicine may overflow to the side if there is no guiding, and thus making the table dirty. Therefore, this invention further provides a design with a flange 171 protruded from the outer bottom with an appropriate height from the guiding groove 13 as shown in FIG. 15. The flange 171 can guide the tea or medicine when it is

poured to avoid the overflow of the tea.

Please refer to FIG. 4 for the third preferred embodiment of this invention. Basically, the third preferred embodiment adopts the structure of the first preferred embodiment, except having a plurality of outlet holes 13 disposed on the flange 10 of the inner cup lid 1 and a convection hole 16, and a primary insert hole 14 disposed at the center of the arc surface 22, and not including other holes.

Please refer to FIG. 5 for the fourth preferred embodiment of this invention. Basically, the fourth preferred embodiment adopts the structure of the second preferred embodiment, except having no hole at all on the outer cup lid 2, and the outer cup lid 2 is simply used to cover the inner cup lid 1.

Please refer to FIG. 6 for the fifth preferred embodiment of this invention. Basically, the fifth preferred embodiment adopts the structure of the first preferred embodiment, except having no hole at all on the outer cup lid 2, and the outer cup lid 2 is also simply used to cover the inner cup lid 1.

Please refer to FIG. 8 for the sixth preferred embodiment of this invention. Basically, the sixth preferred embodiment adopts the structure of the second preferred embodiment, except having no hole at all on the outer cup lid 2, and the outer cup lid 2 is simply used to cover the inner cup lid 1. There is a flexible strap 27 connected between the sides of the outer cup lid 2 and the inner cup lid 1, such that after the outer cup lid 2 is opened, the outer cup lid 2 is connected with the inner cup lid 1, which will not be lost easily. The strap 27 may also add a cutting mark 271 so that the user can tear away the strap 27 along the cutting mark 271 to separate the inner cup lid 1 and the outer cup lid 2.

Please refer to FIG. 9 for the seventh preferred embodiment of this invention, which its structure is applicable to the non-disposable hard drinking cup, comprising a cup body 4 and a lid body 5, wherein a recession 40 is disposed on the top of the cup body 4 such that the top of the cup body 4 forms a ring-shaped flange 40, and the flange 40 has a guiding groove 45. A plurality of outlet holes 43 with smaller diameter are disposed at the bottom of the guiding groove 45, and a convection hole



44 is disposed on the flange 40, and a screw thread 42 is disposed on the inner diameter of the flange 40. An inner hole is disposed at the bottom of the cup body 4, and the internal diameter of the inner hole has a screw thread 46. In FIG. 9, the bottom of the lid body 4 has an external diameter corresponding to a central pillar 51 at the internal diameter of the recession 41, and the external diameter of the central pillar 51 has an external screw thread 52. The external screw thread 52 is secured with the internal screw thread 42, such that the lid body 5 covers the top of the cup body 3. After the lid body 3 is removed, the external screw thread 52 of the central pillar 51 is secured with the internal screw thread 46 at the bottom of the cup body 3 acting as a saucer (as shown in FIG. 11).

Please refer to FIG. 10 for the eighth preferred embodiment of this invention. Basically, its structure adopts the structure of the seventh preferred embodiment, except having no guiding groove at the flange 40 of the cup body 3, and only having an outlet hole 43 and a convection hole 44 disposed on the flange 40. Further, a plurality of recessions 53 is disposed on the periphery of the lid body to facilitate users to press and rotate the lid body 5 by fingers.

Please refer to FIG. 12 for the structure of the ninth preferred embodiment of this invention, comprising a cup body 4 and a lid body 5, wherein the cup body 4 has a recession 41 at the top of the cup body 4, such that a ring-shaped flange 40 is formed on the cup body, and the flange 40 has a guiding groove 45. Further, a plurality of outlet holes 43 with smaller diameter is disposed on the bottom of the guiding groove 45, and a convection hole 44 is disposed on the flange 40. The external diameter of the flange 40 has an external screw thread 47; the external diameter at the bottom of the cup body 4 also has an external screw thread 48; and the internal diameter of the lid body 5 also has an internal screw thread (not shown in the figure). Such inner screw thread can be secured onto the external screw thread 47 to cover the lid body 5 onto the top of the cup body 4, or the lid body 5 is secured onto the external screw thread 48 at the bottom of the cup body 4, being used as a saucer as shown in FIG. 13.

While the present invention has been described by the most practical and preferred embodiments, it is understood that this invention is not limited to the

disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretations and equivalent arrangements.